number of members, is the minute investigation of the Thuringian flora, and the making of botanical collections.

A GENERAL meeting of the Mineralogical Society of Great Britain and Ireland will be held at the Museum of Practical Geology, Jermyn Street, to-day, at 8 p.m. The following papers will be read:—"On Tyreeite," by Prof. M. F. Heddle, F.R.S.E.; "On Minerals New to Britain," by Prof. M. F. Heddle, F.R.S.E.; "Note on Gilbertite," by J. H. Collins, F.G.S.; "On Brochantite," by Wm. Semmons; "On a Remarkably Fine Crystal of Euclase," by M. Guyot; "On the Action of Organic Acids on Minerals," by Prof. H. C. Bolton, communicated by J. H. Collins; "On Strontium from Westphalia," by Joseph J. Acworth, F.C.S., communicated by F. W. Rudler, F.G.S.

UNDER the common name of "Guaco" many plants are known belonging to different natural families, which have a reputation for curing snake-bites. In a recent number of the *Pharmaceutical Journal* particular attention is drawn to one of these guaco-yielding plants, the *Mikania guaco*, a composite plant of South America. The paper referred to is the substance of a letter received at the Royal Gardens, Kew, from a correspondent at La Salada, New Grenada, in which the writer gives his personal testimony as to the value of the remedy, and says that it forms the basis of all the preparations of the snake-bite doctors of the district. Notwithstanding that there are several species of snakes in the country whose bite is considered mortal, some killing in a very few hours, it is asserted by the writer of the letter, who has resided in snake-infested regions for many years, that properly and promptly administered the guaco is a sure cure for the bite of the most venomous. An infusion or tincture of the leaves is used internally, and hot poultices of the bruised leaves and stem are applied externally.

THE Report on the Botanic Gardens, Georgetown, Demarara, for the half-year ending June 30 last has just been received. Its matter is mostly of local interest. We note however that Mr. Jenman, the superintendent, refers in one part of the Report to the rapid growth of some introduced plants. "This," he says, "is more particularly shown by the roses obtained from England. The hybrid perpetuals from average-sized nursery plants have in the three months which have elapsed since they were put out, grown into bushes from six to seven feet high, and the other hard-wooded things have hardly done less well; while herbaceous plants such as *Coleus*, *Alternanthera*, *Iresine*, *Amaranthus*, &c., appear to rush up to maturity in two or three weeks. Much of this luxuriance is due however to the very moist season experienced, as vegetation soon suffers and becomes stagnant with even a short period of drought in the stiff, tenacious soil of the coast land of the colony."

A PLANT recently introduced to Queensland by accident is reported to be giving some trouble in the colony in consequence of its poisonous effects upon cattle. The plant is *Xanthium strumarium*, and it is said to have been introduced along with cotton seed. From experiments made with the plant by administration of the extract to some animals it seems at first that no particular symptoms were apparent, but after a period of about half an hour the animal becomes torpid and unwilling to move about. "The torpidity gradually increases, and without notable struggling or excitement the breathing ceases, after which the heart's action becomes feeble and stops. In weaker doses recovery of the functions of life takes place, and the animal appears little the worse for the experiment. The animals poisoned retained their intelligence to the last. An extract prepared from the common Bathurst Burr, *Xanthium spinosum*, gave similar results, though the stubborn character of this plant does not offer a tempting food for cattle, and they are not therefore poisoned by it." Both species are found as casual weeds in this country, though they are not considered to be indigenous.

ON the 7th inst. the distinguished Vienna anatomist, Dr. Hyrtl, reached his seventieth birthday. He received numerous addresses from medical bodies in Austria, and congratulatory telegrams from all parts of the world.

IN Banjaluka (Bosnia) a distinct shock of earthquake was felt on the 6th inst. at 9.18 p.m., direction north-east to south-west, duration four seconds. In Agram, on the 11th, a violent shock was experienced about 5 a.m., and one less violent about 7.14 a.m. Since the 12th there have been no shocks there. The entire number of shocks at Agram during the earthquake period—November 9 to December 10—is (according to official data) fifty-nine. In Gurkfeld (Styria) shocks of brief duration were felt on the 11th inst. at 5 and 7.12 a.m., direction south-east to north-west.

A SLIGHT shock of earthquake was felt at Charleville, Ireland, on Saturday morning. It passed from the north-west to the south-east, and lasted for five seconds.

THE new "Year-book of Photography" contains a nice portrait of Daguerre, the father of photography, from a daguerrotype taken in 1846 by Mr. J. E. Mayall.

IN a moor of the Canton of Vaud (Switzerland) a well-preserved boat, dating from the age of pile-dwellings, has been found. It measures eleven metres in length and one metre in breadth, and has been conveyed to Lausanne.

THE ruins of a once magnificent bathing establishment have been recently discovered by Prof. Giuseppe Novi not far from Herculaneum. They are covered with a layer of ashes and lava of ten metres thickness. What has been brought to light up to the present is said to eclipse all previous discoveries of a similar nature both in Herculaneum and Pompeii. The fountains and tanks of these "Terme" are made of oriental granite and adorned with sculptures. The floors are of coloured glass mosaic; unfortunately it is but badly preserved. The walls of the various buildings are elegantly ornamented with paintings and stucco-work. The excavations are to be continued.

OUR ASTRONOMICAL COLUMN

SWIFT'S COMET.—The evidence in favour of a period of about 5½ years instead of about 11 years for this comet is apparently strengthened by an able note from Mr. S. C. Chandler, jun., which we find in an advance number of the Boston *Science Observer*. He brings the two periods to bear upon the representation of the observations of 1869. Starting with Prof. Bruhns' parabolic elements in *Ast. Nach.* No. 1788, he computed an ephemeris and compared therewith all the published observations, thirty-five in number, after taking into account parallax and aberration. The residuals were found to be considerable and systematic, and with the view to obtaining a nearer approximation to the orbit before proceeding with the determination of final elements, he formed three normals, using for the first all the observed places, six in number, from November 29 to December 1 inclusive; for the second all the places from December 8 to 10 inclusive, eleven in number; and for the third six observations between December 26 and 31: these observations were made at Hamburg, Königsberg, Kremsmunster, Leipsic, Manheim, and Vienna; he thus gets for the foundation of his subsequent work the following normal positions:—

Washington M.T.		App. R.A.		App. Decl.
		h. m. s.		° ′ ″
1869, November	29·82475 ...	23 1 5·20	...	+ 15 51 57·7
December	8·81453 ...	0 3 37·28	...	20 55 2·1
December	29·43628 ...	2 39 22·08	...	+ 26 30 56·8

From these data Mr. Chandler calculates elements upon three different hypotheses: (1) that the orbit is a parabola; (2) that it is an ellipse with a period of 4006 days, or about 11 years (3) that it is an ellipse with a period of 2003 days, or about 5½

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years, and he finds from these three orbits the following residual errors for the second normal place :—

	Longitude.	Latitude.
	″	″
Parabola	− 3·1	+ 25·7
11-year ellipse	− 0·6	+ 12·9
5½-year ellipse	− 0·3	+ 4·1

Mr. Chandler finds that an attempt to reduce these errors in latitude on the assumption of a parabolic orbit or an elliptic orbit of 11 years' period, will only lead to intolerable discordances in the longitudes, and he considers that for both these hypotheses the residuals are far in excess of the probable error of the normal position. For the shorter period, on the contrary, the residuals seem well within reasonable limits of error, and his conclusion therefore is that the comet will be found to revolve in about 5½ years. His ellipse with this assumed period is as follows, and will be found in close agreement with that obtained on a similar hypothesis from the observations of the present year, by MM. Schulhof and Bossert, which we gave last week :—

Perihelion passage, 1869, November 18·59702 Washington M.T.

Longitude of perihelion	42 58 53	M. Eq.
,, ascending node	296 46 2	1869·0
Inclination	5 23 44	
Excentricity	0·6581359	
Semi-axis major	3·10971	
Log. perihelion distance	0·0265728	

It appears that the comet was observed at Harvard College until January 3, 1870, or three days later than at any other observatory, and Prof. Pickering has had these late observations very carefully reduced.

At the actual appearance a communication from Mr. Lewis Boss, Director of the Dudley Observatory at Albany, N.Y., shows that the comet was micrometrically referred to a star, with the 13-inch refractor of that establishment, on the evening of October 11, but the declination of the comparison-star (B.D. + 17°·4611) needs further examination; it might be referred to Bessel's star 38s. following and about 6½′ north. If good observations can be obtained towards the end of the present month the elliptic orbit may admit of pretty close determination from the observations of 1880 alone. The following ephemeris is calculated from MM. Schulhof and Bossert's ellipse of 5½ years :—

At Greenwich midnight

	R.A	Decl. N.	Log. Δ.
	h. m. s.	° ′	
Dec. 23 ...	5 28 18 ...	35 3·4 ...	9·3514
24 ...	5 30 38 ...	34 28·9	
25 ...	5 32 51 ...	33 55·6 ...	9·3736
26 ...	5 34 58 ...	33 23·4	
27 ...	5 36 59 ...	32 52·5 ...	9·3957
28 ...	5 38 55 ...	32 22·6	
29 ...	5 40 47 ...	31 53·7 ...	9·4177
30 ...	5 42 35 ...	31 25·8	
31 ...	5 44 19 ...	30 58·9 ...	9·4828
Jan. 1 ...	5 45 59 ...	30 33·0	
2 ...	5 47 35 ...	30 8·0 ...	9·5041
3 ...	5 49 7 ...	29 44·1	
4 ...	5 50 34 ...	29 21·2 ...	9·5252
5 ...	5 51 56 ...	28 59·2	

A NEW COMET.—A small, pretty bright comet was discovered by Dr. Pechüle at Copenhagen on the evening of December 16, in R.A. 18h. 49m., Decl. + 10° 30′. Daily motion, + 5m. and + 40′.

OCCULTATION (?) OF 73 PISCIUM BY JUPITER.—On February 3, 1881, according to Leverrier's Tables of the planet Jupiter and the position of the star 73 Piscium (rated 6·0m. in the *Durchmusterung*) brought up from the Greenwich Catalogue of 1872, the star should be occulted by the planet about 2h. 8m. G.M.T. Very small change however in the place or semi-diameter of the planet, might suffice to bring about merely an appulse. The facts of the case may be well ascertained in easterly longitudes, as at Madras, where the conjunction in Right Ascension appears to occur when the planet is 3h. 26m. past the meridian, about 7h. 29m. mean time. The apparent place of the star on February 3 is in R.A. 0h. 58m. 43·53s., Decl. + 5° 1′ 10″·2. The polar semi-diameter of the planet, according to the value of mean semi-diameter now adopted in the *Nautical Almanac*, will be 17″·2, and allowing for parallax, this seems to place the star a little over 2″ within the planet's northern limb.

METEOROLOGICAL NOTES

FROM an able and temperately-worded article in the New York *Nation* on the Signal-Service Succession, it is plain that meteorology is in a critical position in the United States at the present moment. The whole question of the future of meteorology in that country practically turns on the sort of man who is to be appointed to succeed the late lamented Gen. Myer. As regards the bearing of the question on the promotion of the great financial, commercial, and educational concerns of the country, the writer of the article well puts it when he states that "it depends altogether on the future management of the office whether its activity shall be confined to a lifeless routine without any attempt to make new discoveries or introduce improved methods, or whether it shall be animated by that progressive spirit which will not be satisfied until every man within reach can be informed of coming meteorological changes as long in advance as it is possible for them to be foreseen." To accomplish this end much more is needed than a most diligent discharge of the daily duties of the office, such as will put the public in possession of forecasts drawn up on the lines that have hitherto been followed in forecasting the weather. It was an essential feature of General Myer's procedure that in framing the forecasts in the office he confined himself simply to making the best use of what was already known of meteorology. But whilst this continued the practice of his office, he had the genius to see that if the system of forecasting weather is to make way it is absolutely indispensable to strike out entirely new lines of observation with the view of arriving at some positive knowledge of the great movements of the atmosphere and their determining causes. Hence his great scheme of International Meteorology, by which was secured one daily observation at the same physical instant, where possible, over the globe, and the regular publication of the monthly results in the U.S. Weather Maps, with which our readers are familiar. These admirable maps, together with the Weather Maps of the States themselves, published at intervals of eight hours through a period of ten years, now furnish a mass of material the value of which it is not possible to overestimate; and the adequate discussion of which, it may be very safely said, is the next great step to be taken by meteorology. This step it is in the power of the United States to take, and whether it be taken or not depends almost wholly on the character of the man who may be called to fill the place so suddenly left vacant by General Myer's premature decease. What, above all, is imperatively required, is a sympathy with science and workers in science, so strong and so decided that he will, without fail, enlist in the service of his country some of the best intellects who will give their time and their energies to work out the great problem of weather prognosis.

THE American mails inform us that a frost of unusual severity for the season set in over Canada and the middle States on November 19. It came so suddenly and with such intensity that vessels of every description were frozen up and fixed, in many cases in mid-stream. The cold was greatest all along the St. Lawrence, where the thermometer ranged from zero to − 10°·0. Several ocean steamers, even, were placed in a very precarious position, and altogether it is estimated that 800 vessels laden with grain, potatoes, fruit, and other produce were frozen up; and many deaths have occurred in consequence of the frost. So early and intense a frost has not been experienced in Canada since 1873. Closely following it occurred a remarkable depression of temperature in the British Islands, which as regards certain districts in North Britain was unprecedented at so early a period in the winter months. It was an accompaniment of a wide-spread area of high pressure which appeared off the north-west of Scotland on the 20th as shown by the English and German daily weather maps. On this day temperatures fell low for the season, particularly along the west from Cornwall to Shetland. On the 21st the high-pressure area had advanced a considerable way towards the south-east, and under the clear skies and light winds which characterised it, the temperature fell in many places in Scotland to a degree which would have been noteworthy in the depth of winter. The protected thermometer fell at Aboyne Castle on Deeside to zero, and to 1°·0 at several places, viz., at Lanark in Clydesdale, at Stobo Castle near the head of the Tweed, and at Thirlestane Castle on the Leader. These low temperatures were approximated to at a considerable number of the other stations of the Scottish Meteorological Society situated in the larger valleys in in-

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